

Chapter 5

Remedy Selection and Permit Modification

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Note to the Reader

On February 16, 1993, EPA promulgated a portion of the proposed Subpart S rule as a final rule (see *Corrective Action Management Units and Temporary Units; Corrective Action Provisions; Final Rule*, 58 FR 8658, Tuesday, February 16, 1993). This final rule sets forth the requirements for establishing corrective action management units (CAMUs) or temporary units during RCRA corrective actions. The specific requirements for CAMUs and temporary units under the final rule differ significantly from the requirements of the proposed rule (see 55 FR 30842-30844, July 27, 1990). Rather than delay publication of this guidance, the DOE Office of Environmental Guidance has chosen not to incorporate these changes into this guidance. Therefore, the discussions of CAMUs and temporary units appearing in this document are based solely on the proposed Subpart S rule. A copy of the final CAMU and temporary unit rule is provided as an appendix to this guidance. A summary of the major provisions of the rule is provided below.

The final rule does not change the most important benefit of establishing a CAMU, namely, remediation wastes (a new class of wastes established in this rule) generated during corrective action can still be disposed of in a CAMU without triggering the land disposal restrictions (LDRs) or minimum technology requirements (MTRs). However, the final rule does make several significant changes in the requirements for CAMUs and temporary units. Briefly, these changes include:

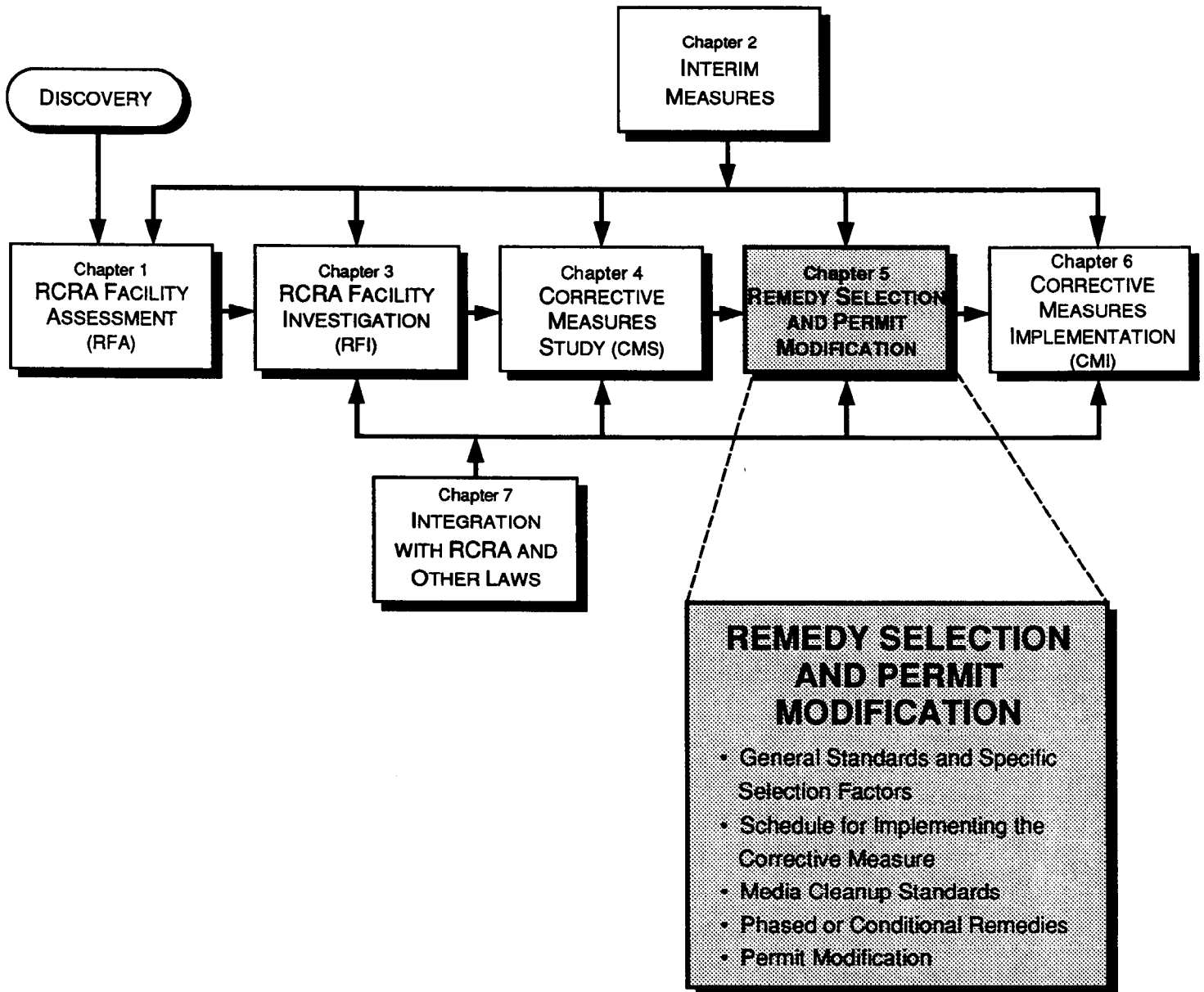
- CAMUs are no longer limited to contiguous areas of contamination, but are now linked primarily to where remediation wastes are managed; that is, designation of CAMUs is now related to the function and purpose they serve in facilitating management of remediation wastes during cleanup rather than to the areal extent of contamination.
- Establishing a new class of wastes called remediation wastes. Only remediation wastes can be managed in a CAMU or temporary unit.
- Permitting disposal of remediation wastes, generated at any location within the boundaries of a facility, in a CAMU.
- Creating a set of specific decision factors that must be considered when establishing CAMUs or temporary units.

Note to the Reader

(continued)

- Establishing regulations for permits, permit modifications, orders, or order modifications establishing CAMUs or temporary units that include: (1) specific elements that must be included; (2) documentation requirements for the decision; and (3) requirements for public participation in the process.
- Establishing requirements for designating regulated units (i.e., land-based units such as landfills, surface impoundments, or waste piles) as CAMUs.
- Setting out requirements for closure of CAMUs.
- Limiting the designation of temporary units to tanks and container storage units.
- Increasing the permissible life of a temporary unit from 180 days to 1 year.
- Establishing specific requirements for granting extensions to the operational time limit placed on temporary units.
- Providing specific details on how the CAMU and temporary unit final rule will be implemented in States that are: (1) not authorized for the base RCRA program; (2) authorized for the RCRA base program, but not for corrective action; and (3) authorized for corrective action.

RCRA Subpart S Corrective Action Process



Introduction

This chapter addresses two areas of the RCRA Corrective Action process, selection of the corrective measure and the process for modifying the facility permit to require implementation of that corrective measure.

Section 264.525 of the proposed Subpart S rule establishes the evaluation factors for selecting a corrective measure to address environmental contamination resulting from a release of hazardous wastes or hazardous waste constituents from a solid waste management unit (SWMU). This section also establishes the process for developing media cleanup standards (MCS). Section 264.526 establishes the requirements for the permit modification compelling implementation of the corrective measure.

Under the proposed Subpart S rule, the selection of the corrective measure is solely the responsibility of EPA and is accomplished through the permit modification process. Input from DOE occurs through the conclusions of the RCRA Facility Investigation (RFI) and Corrective Measures Study (CMS) reports as well as through negotiation, discussion, and use of the opportunities for public comment during the permit modification process. In this way the selection of a corrective measure, which is an EPA-led effort, differs from other components of the RCRA Corrective Action process where the owner/operator was the lead agency.

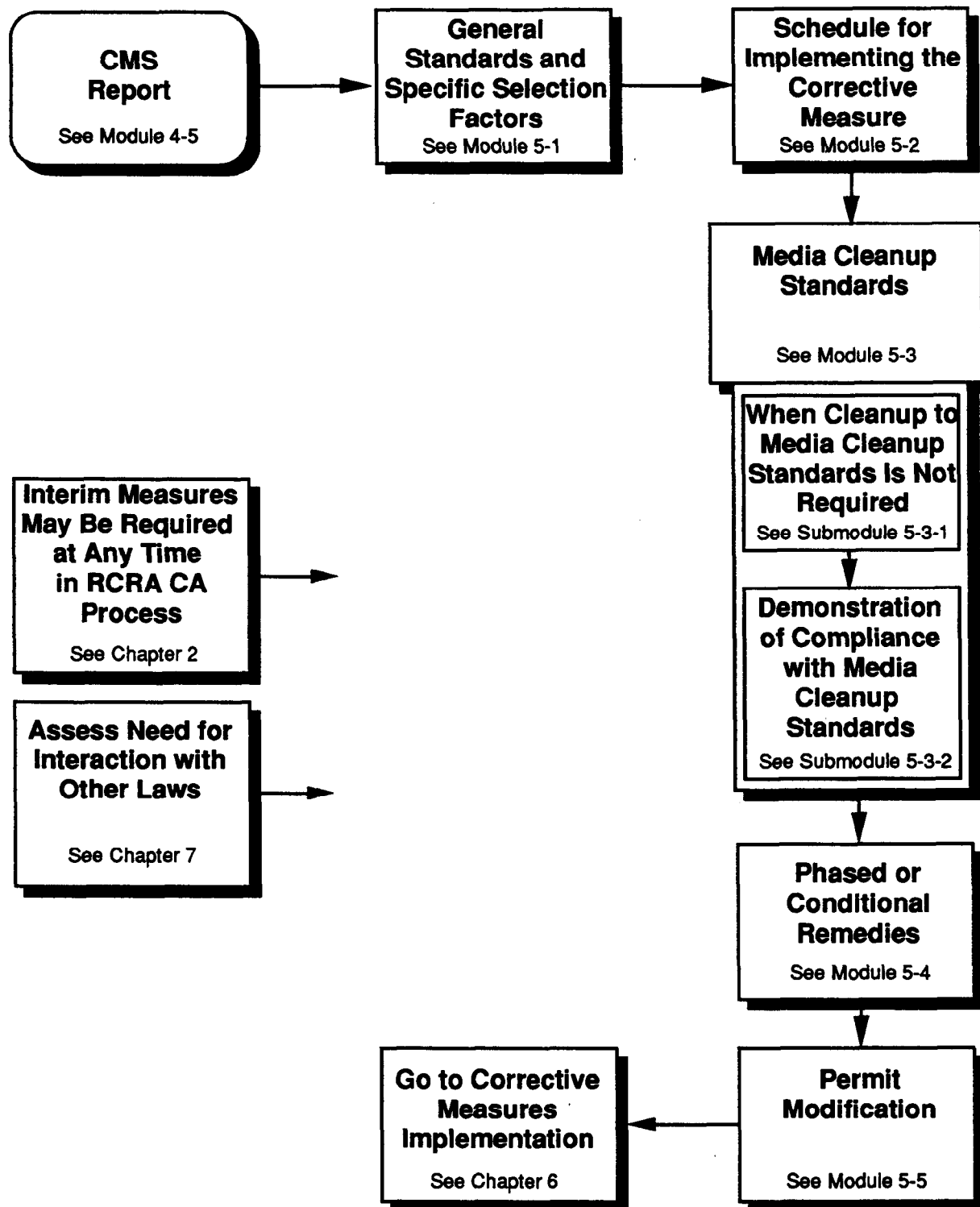
Many areas of the proposed Subpart S rule are not clear in meaning or scope. In these areas, the meaning of the language of the proposed rule has been interpreted on the basis of "best professional judgment." It should also be noted that the presentation sequence for the guidance that follows does not exactly match the sequence presented in the proposed rule, and the guidance is not intended as a rigid structure. For any number of reasons, the corrective measures selection and permit modification process may vary from the sequence as presented.

Throughout this chapter, there are references to EPA. For the sake of clarity this term includes those States with appropriate RCRA authorization.

The following modules of this chapter provide a detailed discussion of the remedy selection and permit modification process outlined in the graphic on the next page.

Module 5-1 General Standards and Specific Selection Factors

The Corrective Measures Study (CMS) process, discussed in Chapter 4 of this document, provided a detailed evaluation of several alternatives for the corrective measure. The bases for this analysis are the general performance standards and specific decision factors for selecting the corrective measure for the SWMU or corrective action management unit (CAMU). The general performance standards state that a corrective measure must:



Chapter Five: Remedy Selection and Permit Modification

- Provide protection of human health and the environment;
- Attain final media cleanup standards (MCS);
- Provide source control to reduce or eliminate further releases that may pose a threat to human health and the environment; and
- Comply with the standards for management of wastes generated during the corrective measure.

The specific decision factors used in selecting the final corrective measure are:

- Long-term reliability and effectiveness;
- Reduction of toxicity, mobility, and volume of the contaminants;
- Short-term effectiveness, including the risks associated with implementing the corrective measure;
- Implementability; and
- Cost.

Module 5-2 Schedule for Implementing the Corrective Measure

Under the proposed Subpart S rule, EPA specifies the schedule for implementing the corrective measure. The schedule is determined as part of the corrective measures selection process. The owner/operator of the facility has the opportunity to influence schedule development through the conclusions of the RFI and CMS reports, through negotiation and discussion with EPA, through use of the public comment period, and through the A-11 and A-106 budget documents.⁹

⁹ The A-11 and A-106 budget documents are prepared by each Federal agency as part of the budget request process. The A-11 report is forwarded to the Office of Management and Budget (OMB), and the A-106 document is forwarded to OMB through the EPA. EPA Regions review the A-106 and supply OMB and DOE with comments regarding pollution abatement projects. Funding for environmental compliance or cleanup projects is requested by a Federal agency through these mechanisms. If the funding request is denied by OMB, the agency will not receive funds to specifically conduct those activities. For additional information, consult the EPA document titled *The Federal Facilities Compliance Manual*.

In developing the schedule, EPA considers several factors, including:

- The extent and nature of the contamination;
- The capabilities of the alternatives for the corrective measure to achieve MCS and other objectives (e.g., source control, compliance with applicable waste management requirements) of the RCRA Corrective Action program;
- The availability of treatment or disposal capacity for wastes resulting from implementation of the corrective measure;
- The desirability of using an emerging technology;
- The risk posed to the surrounding area arising from exposure before implementation and completion of the corrective measure; and
- Other factors that EPA may consider pertinent.

In developing the schedule, EPA also evaluates the potential benefits of a phased implementation of the corrective measure. A phased corrective measure consists of any logically connected series of actions performed sequentially at the same SWMU or simultaneously or sequentially at different SWMUs within the facility.¹⁰ A phased corrective measure is most likely to be selected when a single action is incapable of remediating all the SWMUs within a facility.

The final schedule issued by EPA becomes an enforceable part of the permit for the facility. If problems arise with maintaining compliance with the schedule, the proposed rule requires the owner/operator to seek a schedule modification (a minor permit modification) before becoming non-compliant. During development of the schedule, DOE should request inclusion of provisions allowing flexibility in the schedule. Adequate flexibility should minimize the number of modifications to the schedule.

Module 5-3 Media Cleanup Standards

Media cleanup standards (MCS) are media-specific concentrations of hazardous waste constituents which are determined by EPA to be protective of human health and the

¹⁰ Phased corrective measures are similar to operable units under CERCLA. Both represent a series of simultaneous or sequential actions at a single unit or several units that leads ultimately to the remediation of contamination at the entire facility. If there is a requirement for compliance with both RCRA and CERCLA, the owner/operator should determine if the unit is part of an operable unit defined under CERCLA. If so, the owner/operator should propose phasing the corrective measure using the same criteria and schedule that apply to the CERCLA units.

environment. Reduction of the concentration of hazardous waste constituents at the point of compliance to the MCS is the primary objective of the implemented corrective measure.

The final MCS are different from action levels and target MCS. Action levels are media-specific contaminant concentrations determined by EPA to be protective of human health and the environment, but are not cleanup goals. Rather, action levels serve as the triggering mechanism for a CMS. If, during the RFI, sampling determines that the concentration of hazardous waste constituents exceeds an action level, a CMS is usually required at that SWMU. Target MCS are preliminary cleanup goals established during the CMS to provide a benchmark for evaluating the effectiveness of the alternatives for the corrective measure. Target MCS and action levels can differ significantly from the final MCS established for the corrective measure.

Developing the MCS is a two-step process. The first step establishes the MCS based upon the risk to human health. This protectiveness standard sets the range for an acceptable risk from exposure to carcinogenic compounds at an excess lifetime cancer risk of 1 additional case of cancer in 10,000 persons to 1 additional incidence of cancer in 1,000,000 persons. The standard for systemic toxins is that concentration to which human populations (including sensitive subgroups) can be exposed on a daily basis without appreciable risk of deleterious effect during a lifetime of exposure. The second step of setting the MCS involves adjusting the MCS to be more or less stringent based on other factors, including:

- The effects of exposure to multiple contaminants;
- The impact to environmental receptors;
- The cumulative risk arising from other exposures not directly related to the release; and
- The effectiveness, practicality, reliability, and other factors related to the alternatives for the corrective measure and the ability of the corrective measure to achieve the MCS.

Submodule 5-3-1 When Cleanup to Media Cleanup Standards Is Not Required

Under the proposed Subpart S rule, under certain conditions the owner/operator may not be required to clean up a release to MCS levels. These conditions include:

- No or minimal threat of exposure to the release from a SWMU exists;
- Implementation of a corrective measure will not significantly reduce any risk to human health and the environment; and
- The cleanup of a release is technically impractical.

The owner/operator is responsible for developing the evidence to support any request to waive the cleanup requirements. The owner/operator should carefully assess the cost of, and potential for, successfully supporting such an assertion. Such an evaluation may prove the benefits are outweighed by the cost of developing the supporting documentation. Further, the EPA retains the authority to require source controls or other measures to limit further releases or release migration from the SWMU.

Submodule 5-3-2 Demonstration of Compliance with Media Cleanup Standards

The EPA specifies the requirements for demonstrating compliance with MCS in the facility permit. These requirements include:

- Establishing the points where the owner/operator demonstrates compliance for each environmental media (known as the point of compliance (POC));
- The acceptable sampling, analytical, and statistical methods; and
- The period over which the facility will demonstrate compliance.

Ending the requirement for conducting a RCRA Corrective Action at the facility hinges upon the demonstration of compliance with the MCS established in the facility permit. Therefore, developing the requirements for demonstration of compliance requires close scrutiny by the facility, and if necessary, negotiation.

Module 5-4 Phased or Conditional Remedies

In the preamble to the proposed Subpart S rule, EPA states that conditional remedies are expected to be common at Federal facilities, due to the large number of SWMUs at most Federal facilities, technical limitations such as the availability of treatment technology, and the unique constraints of the Federal budget process. Adoption of a conditional remedy allows the owner/operator to phase-in a corrective measure over a specified period, providing certain conditions are met during implementation.¹¹ Under the proposed Subpart S rule a conditional remedy *must*:

- Be protective of human health and the environment;
- Achieve all MCS beyond the facility boundary, as soon as is practical;
- Prevent further significant environmental degradation by using treatment or engineering controls at the source, and use engineered measures to prevent further migration of the release within the facility boundary;

¹¹ If no conditions are placed on the phase-in of a corrective measure, the process is referred to as a "phased remedy."

- Institute controls to prevent exposure to hazardous wastes at the facility;
- Continue environmental monitoring to determine if significant environmental degradation does occur;
- Provide financial assurances (not applicable at Federal facilities); and
- Comply with the waste management standards for waste generated during corrective actions.

There is one important feature and one important caveat to conditional remedies. The important feature of a conditional remedy is that contaminants can remain at an operating facility if: (1) the owner/operator implements source controls which prevent offsite migration; (2) the risk of exposure, additional releases, or further migration is low; and (3) there is remediation of offsite contamination to MCS (as soon as practical). The caveat is that conditional remedies are not necessarily final remedies. Remediation of all contamination at the facility is a potential requirement for a facility to discharge its obligation to conduct RCRA Corrective Action.

Module 5-5 Permit Modification

A modification to an existing facility permit (or RCRA §3008(h) order) requiring implementation of the corrective measure is the final step in the selection of the corrective measure.

If a permit modification is required, the permit modification follows the process for a "major permit modification" and requires development of the draft permit meeting specific requirements, and a public review and comment period.¹² The draft permit or permit modification and Statement of Basis are the documents which are made available to assist the public in understanding the RCRA Corrective Action activities at the facility. The specific elements required in the draft permit or permit modification are:

- A description of the technical features of the corrective measure necessary for achieving the standards for the corrective measure;
- A listing of all MCS, by environmental media, established for the corrective measure;
- The requirements for demonstration of compliance;

¹²

The standards governing major permit modifications are in 40 CFR §270.41, and the procedural requirements for developing major permit modifications are in 40 CFR §124.

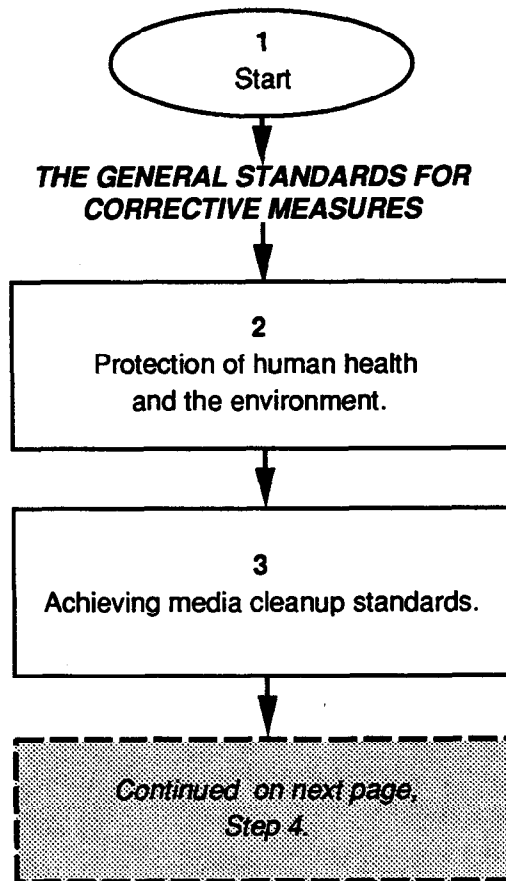
- Specific requirements for the management of waste generated during implementation of the corrective measure;
- The procedures for decontamination, removal, or closure of any units or structures used during implementation of the corrective measure;
- A detailed schedule for implementing all the major technical features of the corrective measure; and
- Any requirements for submission of periodic progress reports.

The Statement of Basis (analogous to a Record of Decision under CERCLA) provides general information about the corrective measures selected by EPA, and also provides an explanation of the process and selection criteria.

The selected corrective measure and a schedule for implementing the corrective measure required under the permit modification become enforceable parts of the facility permit. Chapter 6 of this document discusses the actual implementation of the corrective measure.

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Module 5-1: General Standards and Specific Selection Factors



Module 5-1: General Standards and Specific Selection Factors

This module will discuss: (1) the general standards for corrective measures; and (2) the specific selection factors for corrective measures. Each is discussed in the following steps. The presentation sequence does not indicate any assignment of priority or relative importance.

Step 1 Start.

The General Standards for Corrective Measures (40 CFR §264.525(a))

Step 2 Protection of human health and the environment is the basic mandate of RCRA. This standard, protection of human health and the environment, allows EPA to require measures that do not relate directly to investigation or remediation of releases or potential releases, but which provide some form of protection. (40 CFR §264.525(a)(1))

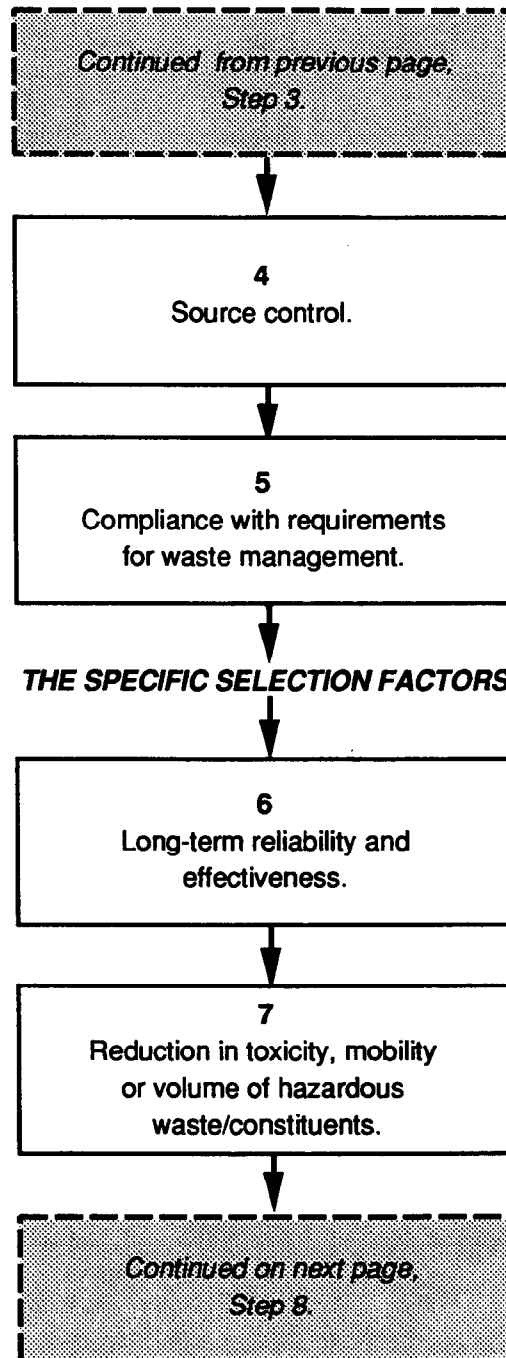
An example would be EPA requiring a facility to provide an alternative drinking water supply if a release from that facility had contaminated a sole source drinking water supply such that the aquifer was unusable as a drinking water supply. While not related to investigation or remediation of the release causing the groundwater contamination, the requirement to provide an alternative drinking water supply would be consistent with the intent of protecting human health.

Step 3 The second standard, achieving media cleanup standards (MCS), relates to the effectiveness of the corrective measure in achieving remediation to levels considered protective of human health and the environment. The MCS standard also provides a benchmark for evaluating the success of the corrective measure. These standards are target values for the protectiveness standard and the degree of attainment of final MCS. These two standards are closely linked. The MCS are media-specific health- and environmental-based contaminant concentrations which must be achieved by the corrective measure. The primary sources of MCS are promulgated standards deemed protective of human health and the environment (e.g., Maximum Contaminant Levels). When such standards do not exist, the corrective measure must achieve an adequate level of protection (see proposed 40 CFR §264.525(d) and (e)).

In developing the proposed Subpart S rule, EPA analyzed two other options:

- Remediation to background levels; and
- Remediation to health-based levels when there was actual or potential exposure.

Based upon the results of this analysis, EPA determined that remediation to background levels was prohibitively costly, and for the most part, technically impractical. Similarly the analysis determined that remediation only when there was actual or potential for exposure failed to provide long-term protection of human health and the environment. (40 CFR §264.525(a)(2))



Step 4 The third standard for selecting a corrective measure is source control. The objective of implementing a corrective measure is preventing further contamination or release migration. Without source control, any corrective measure is likely to be ineffective, or require perpetual implementation. Therefore, source control is one of the most important factors in developing a long-term, effective remedy. (40 CFR §264.525(a)(3))

Step 5 The fourth general standard for a remedy is compliance with the requirements for the management of solid and hazardous wastes generated by the corrective action. The purpose of this standard is twofold. First, this standard fulfills the intent of RCRA for protection of human health and the environment. Second, this standard helps ensure that conducting a corrective measure does not lead to a violation of other applicable waste management standards, possibly creating another facility requiring remediation of contamination. (40 CFR §264.525.(a)(4))

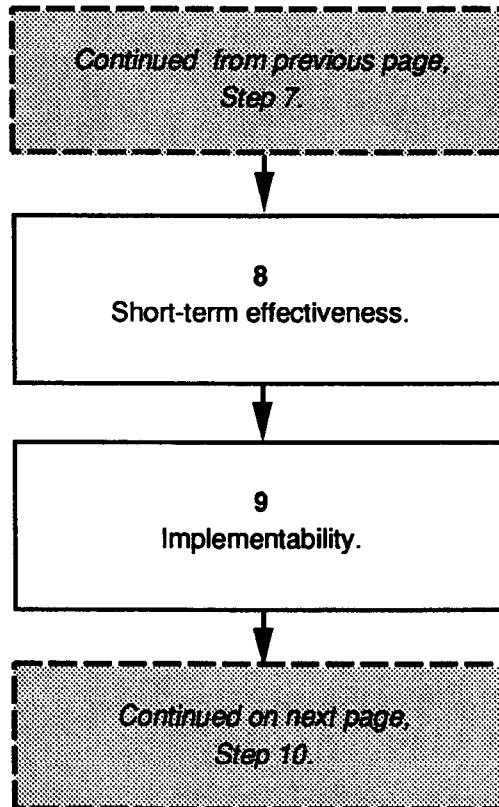
The Specific Selection Factors (40 CFR §264.525(b))

Step 6 The first specific selection factor is the long-term reliability and effectiveness of the corrective measure. This assessment includes:

- Evaluation of the remaining risk at the site once the corrective measure is completed;
- The adequacy and suitability of management, institutional, or technical control measures in preventing exposure to human or environmental receptors;
- Long-term reliability of any institutional controls;
- The potential need for replacement of components of the corrective measure (e.g., replacing a soil-clay cap or geotextile liner); and
- Evaluation of the risks posed if a component of the corrective measure fails or needs replacement.

While EPA states that no specific selection factor has greater weight than any other, EPA will place strong emphasis on selecting corrective measures that act to treat, rather than contain, wastes. (40 CFR §264.525(b)(1))

Step 7 The second selection factor is the degree to which the corrective measure reduces the toxicity, mobility, or volume of the hazardous waste or hazardous waste constituents at the facility. This selection factor relates to the preference for permanent reduction of the overall risk posed by the release as opposed to merely implementing source control. (40 CFR §264.525(b)(2))



Step 8

The third selection factor is the evaluation of the short-term effectiveness of the corrective measure (40 CFR §264.525(b)(3)). Short-term effectiveness is particularly important at facilities where waste or release characteristics pose a high risk to facility employees, adjacent populations, or when the facility is located in a densely populated area and the release has migrated or may migrate offsite. Specific factors for the evaluation of short-term effectiveness include:

- Protection of the potentially exposed populations (i.e., the surrounding community) from risk associated with the implementation of the corrective measure (e.g., exposure to fugitive emissions, transportation of hazardous wastes offsite);
- Protection of workers engaged in onsite corrective action activities, for example, construction of the corrective measure or excavation of contaminated soil;
- The potential short-term impacts on sensitive environments, and possible means of mitigating those impacts; and
- The amount of time before the corrective measure results in a significant reduction in the risk posed by the facility.

Step 9

The fourth selection factor is implementability (40 CFR §264.525(b)(4)). The CMS report lists factors affecting implementation of the corrective measure. Such factors include:

- State and local permit requirements for construction or operation of the corrective measure;
- The technical difficulties associated with construction of the corrective measure;
- The potential for undertaking additional or subsequent corrective action (important when conducting interim measures, or conditional remedies); and
- The technical feasibility of a particular corrective measure.

If successful implementation of a corrective measure is technically impractical (e.g., remediation of a groundwater release into a Karst aquifer, availability of the corrective measures technology, the estimated time for cleanup to reach MCS is greater than 130 years, the cost of cleanup to MCS is greater than \$150 million) such considerations would weigh heavily against selection of that alternative.¹³

¹³ The regulatory impact analysis section of the proposed Subpart S rule states that remedies that failed to achieve cleanup in a 130 year period and or that would cost over \$150 million dollar cost were "impracticable" (see 55 FR 30863).

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Step 9.*



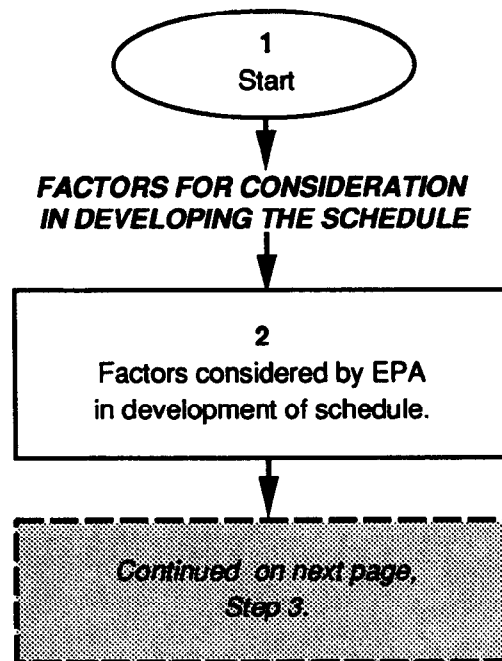
10
Cost.

Step 10

The fifth selection factor is cost. Often two or more alternatives for a corrective measure offer similar protection, but vary widely in cost. In these cases, EPA considers the relative cost an important consideration in selecting the corrective measure. Cost is the last of the criteria evaluated, and will play an important role when two feasible alternatives provide similar protection of human health and the environment within the same amount of time. (40 CFR §264.525(b)(5))

For example, two alternatives for the corrective measure are equally protective of human health and the environment over both the long and short term. Both are technically feasible and easily implemented. However, Alternative 1 has an estimated cost of \$1,000,000. Alternative 2 is estimated to cost \$30,000,000. Using cost as the deciding factor for selection, EPA would probably favor Alternative 1 over Alternative 2.

Module 5-2: Schedule for Implementing the Corrective Measure



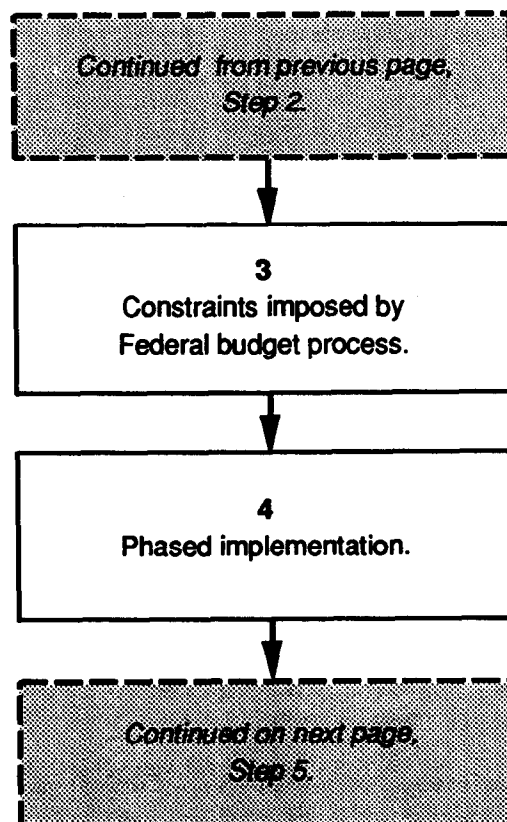
Module 5-2: Schedule for Implementing the Corrective Measure

This module discusses the factors and requirements for developing the schedule for implementing the corrective measure.

Step 1 Start.

Factors for Consideration in Developing the Schedule

- Step 2** There are six factors EPA considers when developing the schedule for implementation of the corrective measure (40 CFR §264.525(c)). These are:
- The extent and nature of the contamination at the facility;
 - The practical capabilities of the corrective measure when evaluated against the media cleanup standards and other objectives for the corrective measure;
 - The availability of treatment and/or disposal capacity for wastes generated during the remediation;
 - The desirability of using emerging technologies;
 - Potential risks posed to human health and the environment prior to completion of the corrective measure; and
 - Other factors deemed relevant by the EPA Regional Administrator.



Step 3

An additional factor which EPA considers at a Federal facility are the constraints imposed by the Federal budget process. Federal agencies rely on appropriations to fund environmental compliance and cleanup activities. Part of the process of obtaining funding for environmental compliance or restoration projects is submission of Pollution Abatement Plans and Projects Reports (also known as "A-106 reports") to EPA.

The A-106 reports discuss the projected funding requirements for pollution abatement projects over a 5-year period. EPA is responsible for reviewing these submissions, and prioritizing the funding requests submitted by the various Federal agencies. Recognizing that there are never enough funds to complete all projects within a single fiscal year, EPA places the highest priority on funding projects where a facility is non-compliant, or where a facility will become non-compliant if funding is not available. Based upon the review of the A-106 submissions, EPA may recommend that Federal agency budget requests be revised to meet established priorities. If a Federal facility has requested funding for a specific environmental project and the request is denied, a Federal agency can be required to reprogram funds allocated to other activities, transfer authority for pollution abatement projects, or request a supplemental appropriation. However, under the terms of the Anti-Deficiency Act (31 USC §1341) a Federal facility cannot be required to allocate funds beyond those for which the facility receives appropriations and is authorized to spend.

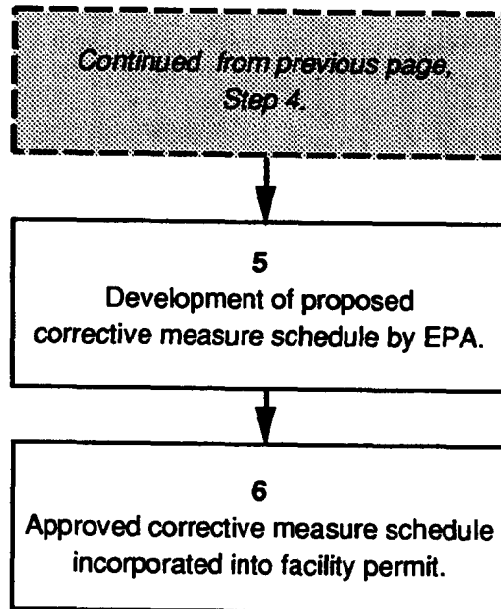
Obviously, a lack of funding will prohibit the facility from implementing the corrective measure. The facility often can use the funding issue to influence the schedule development process.

Step 4

When developing the draft schedule for implementing the corrective measure, the owner/operator of the facility should discuss with EPA phasing the implementation of the corrective measure.

As an example, a phased implementation is appropriate when a single corrective measure is intended for use at several SWMUs at the facility. Such an approach allows for evaluation of that corrective measure under actual conditions, and may prevent the large-scale implementation of an ineffective corrective measure.

Another situation where phased implementation of corrective measures would be appropriate is when remediation of a release from a SWMU requires the use of multiple remedial approaches. For example, a corrective measure at a SWMU containing buried drums which have released hazardous waste constituents to groundwater would require excavation of the drums and associated contaminated soil, followed by installation of a system to address the groundwater contamination. (55 FR 30825)



Step 5

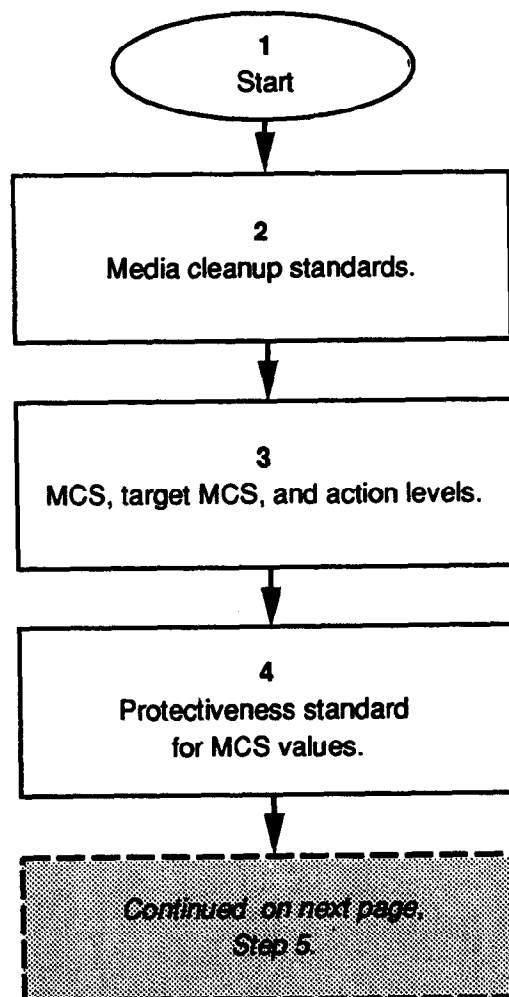
The EPA develops a proposed schedule for implementing the corrective measure, and includes the proposed schedule in the draft permit or permit modification. The owner/operator of the facility has the opportunity to influence schedule development through the conclusions of the RCRA Facility Investigation (RFI) and Corrective Measures Study (CMS) reports, through negotiation and discussion with EPA, through use of the public comment period, and through the submission of A-106 reports to EPA. The owner/operator must take an active role, participating with EPA in developing the proposed schedule.

There are many factors which influence the schedule for the corrective measure. Examples include the availability of the necessary technical expertise, the availability of funding, the complexity of construction, or the demonstrated time a corrective measure will need to reach the established cleanup standard. For example, treatability studies conducted during the CMS may provide an estimate of the length of time required to treat a certain volume of waste (e.g., the maximum feed rate for an incinerator). The proposed schedule will reflect the length of time required to treat the volume of contaminated material at the SWMU under consideration. (55 FR 30825)

Step 6

The schedule, once approved, becomes an enforceable part of the facility permit. To remain in compliance with the terms of the permit, the owner/operator must notify EPA of any deviations from the schedule prior to occurrence and request a permit modification before becoming non-compliant. During development of the schedule, DOE should request inclusion of provisions allowing flexibility in the schedule. Adequate flexibility should minimize the number of modifications to the schedule. (55 FR 30825)

Module 5-3: Media Cleanup Standards



Module 5-3: Media Cleanup Standards

This module discusses establishing media cleanup standards (MCS), and the process for demonstrating compliance with these standards.

Step 1 Start.

Step 2 Media cleanup standards (MCS) represent constituent concentrations in groundwater, surface water, soils, and air that a corrective measure must achieve to comply with the standards for the corrective measures which were discussed in Module 5-1. These standards are usually concentrations established under other authorities (such as Maximum Contaminant Levels (MCLs) under the Safe Drinking Water Act).

Step 3 The final MCS can be different from action levels and target MCS. Action levels are media-specific contaminant concentrations determined by EPA to be protective of human health and the environment, but are not clean up goals. Rather, action levels serve as the triggering mechanism for an CMS. If during the RFI, sampling determines that the concentration of hazardous waste constituents in a media exceeds an action level, a CMS is usually required at that SWMU. Target MCS are preliminary cleanup goals established during the CMS to provide a benchmark for evaluating the effectiveness of the alternatives for the corrective measure. Target MCS and action levels can differ significantly from the final MCS established for the corrective measure.

Step 4 If no concentration value is established under another authority, the MCS are established based upon concentrations which are deemed protective of human health and the environment. The departure point for establishing these levels for carcinogenic compounds is an excess lifetime risk of cancer in the range of 1 additional incidence of cancer in 10,000 persons to 1 additional incidence of cancer in 1,000,000 persons. For non-carcinogenic compounds, the MCS are set at the maximum concentration where no adverse effects are seen in cases of acute or chronic exposure. This level is referred to as the "no observable adverse effects level" (NOAEL).

*Continued from previous page,
Step 4.*



5
Setting MCS for groundwater.



6
Setting MCS for surface water.



*Continued on next page,
Step 7.*

Step 5

Typically, the MCS for groundwater will be based on MCLs. MCLs are maximum concentrations of contaminants allowed in drinking water and are considered protective of human health and the environment. The use of MCLs is consistent with other programs such as the standards under Subpart F. Presently there are 34 MCLs promulgated (6 microbiological contaminants, 3 radionuclides, and 25 organic and inorganic contaminants). MCLs for the chemical contaminants are listed in Appendix B of the proposed Subpart S rule.

Where MCLs are available for a particular constituent but the groundwater at a site is not currently used for a drinking water supply, and is unsuitable for use as a drinking water supply in the future, MCLs will still ordinarily be used by EPA as MCS, however cleanup to MCLs may not be required if the facility can demonstrate that cleanup to MCS is not necessary to protect human health and the environment. See Submodule 5-3-1, Step 3 and proposed 40 CFR §264.525(d)(2)(ii) for additional information on making this determination.

If no MCL is available, the MCS will be set at levels protective of human health and the environment. Typically, for systemic toxins this would be at the no observed adverse effect level (NOAEL), and for carcinogens, at a level where the excess lifetime cancer risk is 1×10^{-4} to 1×10^{-6} .

Step 6

MCS for surface water are based on:

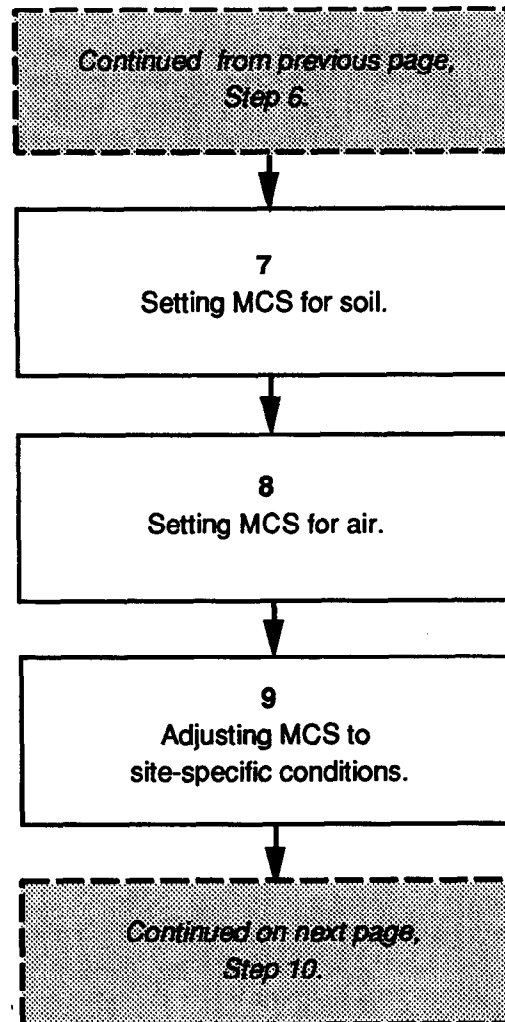
- Numerically expressed State water quality standards.
- MCLs; and
- Risk-based analysis.

State water quality standards established pursuant to the CWA §303 that are expressed as numerical values will be used as MCS, when such values have been established for the surface water body in question.

Where specific numerical values have not been developed, but where narrative water quality standards do exist, EPA will set MCS as numerical interpretations of the narrative standard.

Where numerical water quality standards or numerical interpretations of narrative standards are either unavailable or inappropriate, MCLs will be used, if the surface water has been designated as a drinking water source.

Where a numerical water quality standard, a numerical interpretation of narrative standards, or an MCL is not available for a particular hazardous waste constituent in surface water designated by the State for drinking, EPA will establish MCS in accordance with accepted risk analysis techniques. Typically, for systemic toxins this would be at the no observed adverse effect level (NOAEL), and for carcinogens, at a level where the excess lifetime cancer risk is 1×10^{-4} to 1×10^{-6} .



Step 7

In establishing media cleanup standards for soil based on exposure via direct contact, EPA will use the exposure assumptions listed in Appendix D of the proposed Subpart S rule. These exposure assumptions apply to sites near areas that are now residential or are reasonably projected to become residential. Different exposure assumptions may be used where different exposure scenarios are likely based on current and projected future land use at or near the site. For example, for sites in industrial areas that are likely to remain industrial in the foreseeable future, exposure assumptions more appropriate to industrial land use might be used.

Typically, MCS will not be set for "deep" soil (i.e., soil at depths greater than 2 feet from the surface). Such soils do not pose a direct-contact exposure threat, but can be a source of contaminants to other media, especially ground- and surface water. In such cases the soil would be considered a source, rather than a release. Typically the remedy would specify containment, removal or treatment measures for the soil in the same manner as for other sources (e.g., landfills) (see 55 FR 30827).

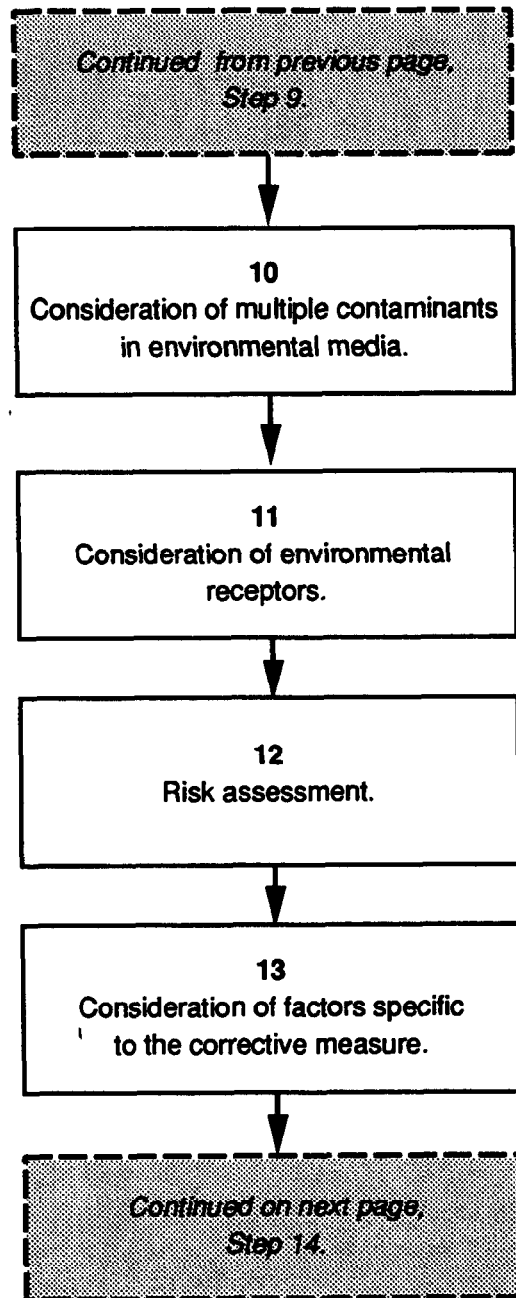
Step 8

MCS for air will be based on an assessment of the risk related to long-term human exposure. The general objective is to prevent exposure of nearby individuals (typically offsite) to harmful levels of airborne toxins and carcinogens released from SWMUs. EPA will use accepted risk assessment practices when setting the MCS for air. This evaluation will focus on determining the greatest risks to humans. The point of compliance (POC) therefore is at the most exposed individual (MEI). The MEI represents locations where people spend a significant amount of time on a daily basis, but does not include transient exposures to air emissions (e.g., persons driving by the facility). It is expected that the POC will typically be outside the facility boundary, thus MCS might be set at any dwelling, private or public building, or other public or private area where exposures could occur on a regular or continuous basis, or at the unit or facility boundary (see 55 FR 30831).

In establishing the location(s) of the MEI, EPA will not include onsite facility workers, but would include people who live onsite, such as military personnel and families who reside at a Federal facility required to obtain a RCRA permit. Occupational exposures generally are the purview of the Occupational Safety and Health Administration (OSHA). Under OSHA Instruction CPL 2-2.37A of January 29, 1986, OSHA and EPA have agreed that OSHA has the lead role in providing for the safety and health of workers at hazardous waste facilities. OSHA has established standards for such exposures in 29 CFR §1910.120.

Step 9

The final MCS levels established for a facility depend on other factors discussed in the next steps. (40 CFR §264.525(d)(1))



Step 10

The first factor which will be considered in establishing final MCS for a facility is the effect of multiple contaminants in the medium. In considering the risks posed by multiple contaminants, EPA will rely on the procedures and principle in the EPA guidance document *Guidelines for the Health Risk Assessment of Chemical Mixtures* (51 FR 34104). In general, this consideration means the MCS for a single carcinogenic constituent will reflect a cumulative (for all contaminants present) excess risk of cancer no greater than 1 additional incidence in 10,000 persons. As a result, the final MCS for a single constituent of a mixture may be considerably lower than if the individual constituent was the sole contaminant present in the medium. (40 CFR §264.525(d)(1)(iii)(A))

Step 11

The second consideration for establishing MCS is the environmental receptors which are threatened by the release. If sensitive ecosystems (e.g., wetlands) or endangered species are impacted by the release, EPA may require remediation to concentrations below the level required for protection of human health.

In the proposed Subpart S rule, EPA states that guidance on assessing ecological impacts is planned for development, but until such guidance is issued, these evaluations will occur on a case-by-case basis. The Federal Water Quality Criteria are an example of a standard which EPA may consider in these case-by-case determinations. (40 CFR §264.525(d)(1)(iii)(B))

Step 12

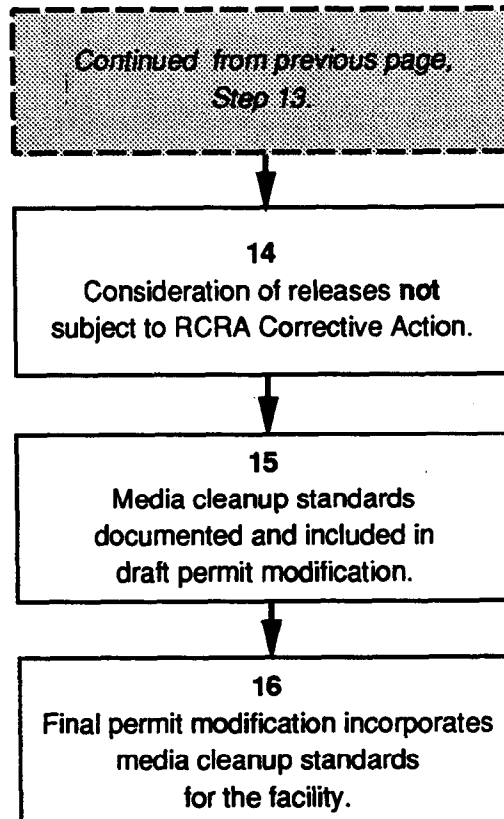
The third consideration involves evaluation of the cumulative risk posed when populations are exposed to multiple sources or through multiple pathways. These sources or pathways may or may not be subject to RCRA Corrective Action. The basis for this consideration is similar to those for multiple contaminants in a medium. The MCS set under these circumstances will reflect a cumulative excess cancer risk no greater than 1 incidence of cancer in 10,000 persons. (40 CFR §264.525(d)(1)(iii)(C))

For example, a population is exposed to high airborne lead levels from a lead smelter which is not part of the facility subject to RCRA Corrective Action. The facility subject to corrective action must address a release of lead to a drinking water supply. In this case, the MCS for the lead in the drinking water could be established at a lower level than if the airborne exposure pathway was not present, even though the source of the additional risk is at an unrelated facility which is not subject to RCRA Corrective Action. The EPA believes the RCRA mandate to protect human health provides the authority to require remediation to below the typical MCS in such cases.

Step 13

The fourth consideration when establishing the MCS includes factors specific to the corrective measure under consideration. These include the reliability, effectiveness, practicality, ability to attain MCS, and other factors which are reflected in the specific corrective measures selection factors. (40 CFR §264.525(d)(1)(iii)(D))

Examples of considerations which can be reflected in the final MCS are limited exposure risk, exposure through the food chain, or contamination of "deep soils" not posing a direct-contact exposure threat. Any assessment of risks posed by the facility conducted as part of the RFI or CMS provides information which may be valuable in making these evaluations.



Step 14

If there is a release of a hazardous waste or hazardous waste constituent from the SWMU, and there is existing contamination attributable to a source not subject to corrective action, EPA can require corrective action at the SWMU, but cannot require remediation below the existing or background level resulting from the other source.

For example, a specific hazardous waste constituent is found in groundwater downgradient from a SWMU. The owner/operator demonstrates that the concentration downgradient does not exceed the concentration upgradient, and the upgradient source is not subject to corrective action. In this case, the owner/operator is not required to remediate the groundwater contamination. However, if the concentration downgradient was higher than the concentration upgradient, the owner/operator could be required to implement a corrective measure to reduce the contamination downgradient of the SWMU to the same concentration as upgradient of the SWMU.

There is an apparent contradiction between this requirement and the requirement discussed in Step 12 of this module. In the example in Step 12, it might appear the facility is being required to remediate to below "background levels." This is not the case. In the example in Step 12, another exposure pathway is considered (i.e., the airborne lead levels from the lead smelter), but in the example, the airborne lead has not been shown to contribute to the lead contamination of the groundwater at the facility. Thus, the facility can be required to remediate the lead in the groundwater to below the typical MCS for lead. However, if the facility could demonstrate that the airborne lead contributed to the groundwater contamination, and the facility could quantify the concentration contributed from the airborne lead source, the facility may be able to establish that the MCS should be set at this "background" concentration.

At facilities with requirements for CERCLA and RCRA compliance, EPA can designate the remedial efforts at more than one unit area as an "area-wide" remedial effort through use of the authority of CERCLA §104(d)(4). Under these circumstances, EPA may require remediation of contamination to below the existing or background concentrations.

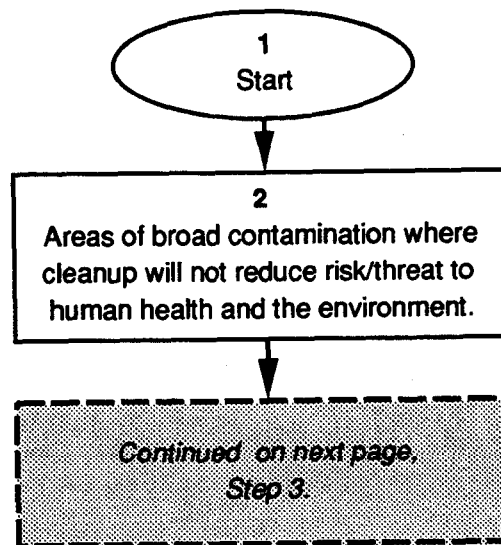
Step 15

The final MCS are documented and included in the draft permit modification, and may be included in the Federal Facility Compliance Agreement (FFCA).

Step 16

The final permit modification will establish the MCS for the facility, and demonstration of compliance with the final MCS is required for release from the RCRA Corrective Action process. The process of permit modification is discussed in detail in Module 5-5. (40 CFR §264.526(b)(2))

Submodule 5-3-1: When Remediation to Media Cleanup Standards Is Not Required



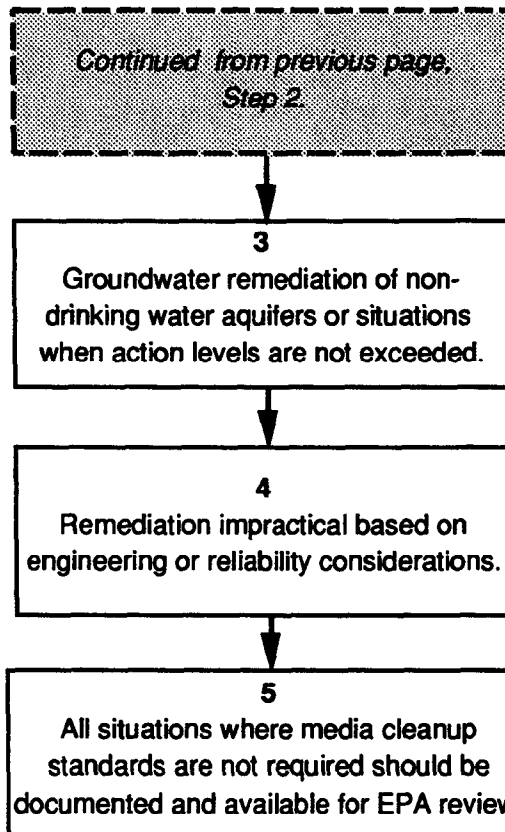
Submodule 5-3-1: When Remediation to Media Cleanup Standards Is Not Required

Under the proposed Subpart S rule, in certain situations the owner/operator may not be required to remediate a release to media cleanup standards (MCS). This submodule discusses these situations.

Step 1 Start.

Step 2 The first situation involves areas of broad contamination. If the risk from the release from a SWMU is trivial compared to the overall risk from the contamination already present, or where remediation to MCS will not contribute to a reduction of the risk posed, EPA has the discretion to not require remediation to MCS. In these cases the owner/operator may be required to conduct other activities which provide some reduction of the risk, to control the source of the release, or to contribute to an area-wide remedial effort under other authorities such as CERCLA. (40 CFR §264.525(d)(2)(i) and 55 FR 30828)

For example, an aquifer is already contaminated by offsite sources. A release from a SWMU contributes a minor amount to the total contamination. In this case, remediation of the quantity of waste released from the SWMU may provide only a limited benefit. In such a case, EPA may elect to limit the response to implementing source controls at the SWMU in order to prevent further environmental degradation.



Step 3

The second situation involves remediation of a release to groundwater. Cleanup to MCS may not be required if the owner/operator demonstrates that the contamination: (1) does not impact an aquifer which is a current or potential source of drinking water; and (2) the contaminated aquifer is not hydraulically connected with waters to which the hazardous waste constituents could migrate in concentrations which could increase contamination in the groundwater to concentrations exceeding action levels.

In determining if an aquifer is a current or potential source of drinking water, EPA will rely on the *RCRA Groundwater Protection Strategy* guidance which was issued in 1986. Generally, Class III aquifers or aquifers with total dissolved solids (TDS) levels over 10,000 mg/L (ppm) are not considered potential sources of drinking water.

In any case, these determinations are made on a case-by-case basis, and the responsibility for providing all supporting information falls upon the owner/operator. The owner/operator must demonstrate *both* conditions specified above through hydrogeological studies, land use planning, and population demographics. The owner/operator should refer to the EPA Groundwater Protection Strategy Technical Enforcement Document (OSWER 9950.1) for specific information on the necessary evaluations for establishing such an assertion. (40 CFR §264.525(d)(2)(ii) and 55 FR 30829)

Step 4

The third situation where remediation to MCS is not required occurs when achieving MCS is impractical due to engineering feasibility and reliability considerations.

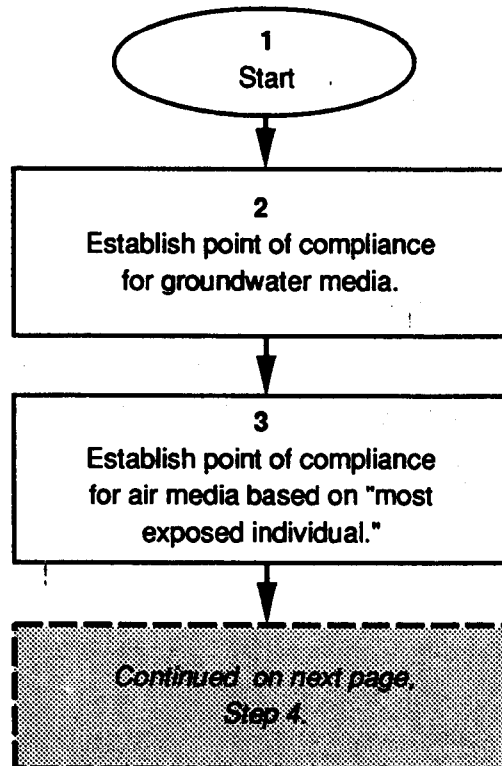
In this case, the owner/operator must, to quote the preamble to the proposed Subpart S rule, "...provide clear and convincing information to support any assertion that such cleanup is technically impractical."

An example of a situation where cleanup to MCS may be impractical is the presence of contaminants in a mature Karst formation. A mature Karst formation is characterized by sinkholes and cave development. The use of standard remediation techniques (i.e., pump-and-treat) in a mature Karst aquifer is impractical due to the impact of the two types of fluid flow regimes on contaminant transport efficiencies, the relationship of discharge and recharge to variations in weather patterns, and the need for rigorous and expensive characterization of the aquifer. (55 FR 30830)

Step 5

If any of these situations arises at a facility, the owner/operator should document the findings, and provide this document and all supporting evidence to EPA. This information is usually discussed in the RCRA Facility Investigation (RFI) and Corrective Measures Study (CMS) reports, but a separate document detailing such findings should be provided to EPA. (40 CFR §264.525(d)(2)(iii))

Submodule 5-3-2: Demonstration of Compliance With Media Cleanup Standards



Submodule 5-3-2: Demonstration of Compliance With Media Cleanup Standards

The procedures and requirements for demonstrating compliance with the media cleanup standards (MCS) are established as a Class III (major) permit modification to a final RCRA Part B permit. This submodule discusses the establishment of the points of compliance for each medium, the methods for establishing compliance, and the period of performance over which compliance must be evaluated and demonstrated.

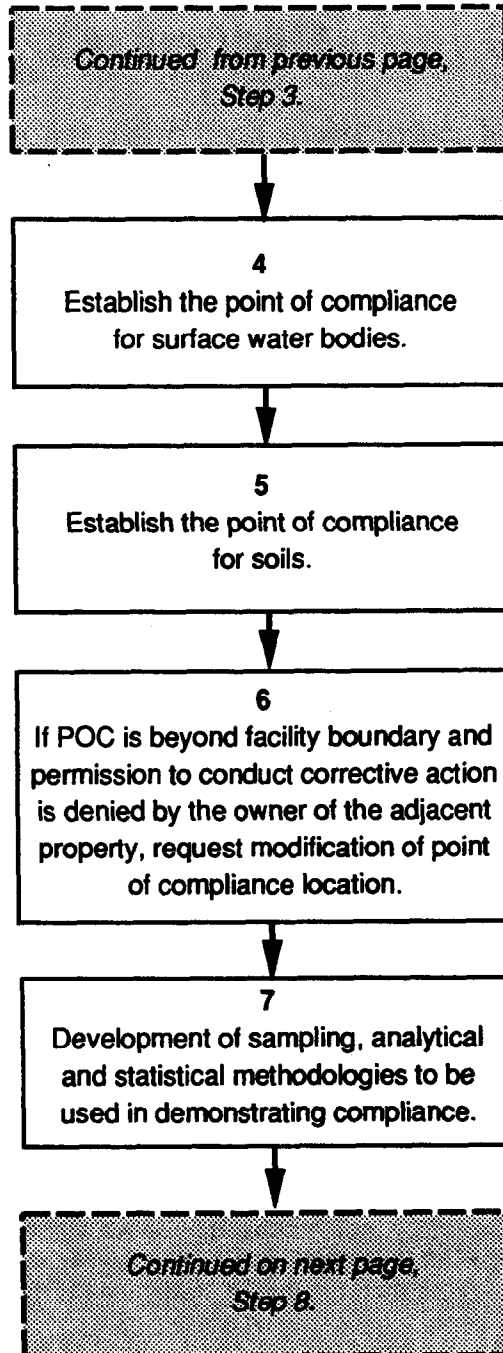
Step 1 Start.

Step 2 Under the proposed Subpart S rule, the point of compliance (POC) for remediation of groundwater generally will be the entire region of contaminated groundwater (i.e., the entire plume). In the case of a drinking water supply aquifer, the owner/operator would be required to demonstrate that following remediation the aquifer was acceptable for use as a drinking water supply. In the case of a SWMU where wastes are left in place during a corrective action, the EPA Regional Administrator may require the owner/operator to install groundwater monitoring wells to demonstrate that hazardous waste constituents are not migrating from the unit.

In any case, EPA specifies the location of any groundwater monitoring wells. The owner/operator should provide EPA with information on existing monitoring wells or potential locations for monitoring wells. (40 CFR §264.525(e)(1)(i))

Step 3 The primary point of compliance for air is the most exposed individual (MEI). The MEI is the point(s) of maximum long-term exposure. The population considered when determining the MEI includes those persons who spend a significant portion of their time at that location (e.g., persons living within the facility boundary as occurs at many Department of Defense facilities, nearby residents not living within the boundaries of the facility, persons at neighboring facilities, schools). Those persons exposed while passing near the facility are not considered when determining the MEI. Those persons working at the facility are not considered when determining the location of the MEI. The Occupational Safety and Health Act (OSHA) regulates employee exposure, and EPA and OSHA use this authority to address employee exposure.

If other conditions warrant, such as a threat to a sensitive environmental receptor, the EPA Regional Administrator may set the compliance point for air at a point other than the MEI. The location of the compliance point typically is where the EPA Regional Administrator will require that monitoring stations be established. (40 CFR §264.525(e)(1)(ii))



Step 4 The point of compliance for surface water is the point where the release enters the water, even if this point is located outside the boundaries of the facility. The use of this point applies to point and non-point sources, and for those situations where groundwater flows into a surface water body. If the surface water contamination impacts sediments, points and depths for demonstrating compliance with MCS in the sediments will be specified in the permit.

Usually the location of the point of compliance for surface water (where surface water sampling points are located) will be readily apparent (i.e., as with a point source) but in other cases (as with non-point or groundwater sources) this point may not be clearly defined. In either case, the point of compliance is specified by the EPA Regional Administrator and reflects the uses of the water (i.e., drinking water supply, industrial supplies) and the environmental and ecological importance of the water body. (40 CFR §264.525(e)(1)(iii))

Step 5 Any point where direct contact may occur is used to establish the point of compliance for soils. However, in establishing the point of compliance, the EPA Regional Administrator will consider the potential for cross media contamination (i.e., contaminated soils leading to groundwater contamination), and the point of compliance may reflect such concerns. (40 CFR §264.525(e)(1)(iv))

Step 6 A facility may be required to conduct corrective action where a point of compliance is established beyond the facility boundary. In these cases, the facility must secure permission from the owner of any property onto which facility personnel must enter in order to conduct corrective action activities. If this permission is denied, the facility may, under the authority of RCRA §3004(v) request that the EPA Regional Administrator modify or rescind the requirement to conduct corrective action beyond the facility boundary. (40 CFR §264.525(e)(1)(v))

Step 7 The EPA Regional Administrator may establish sampling, analytical, and statistical methods and frequency for sampling to demonstrate compliance and will specify these requirements in the facility permit. Other documents prepared during the course of the RCRA Corrective Action, such as the RCRA Facility Investigation Plan supply information useful in complying with these requirements.

As part of these requirements, a quality assurance project plan (QAPP) or data collection quality assurance plan (DCQAP) for use when conducting the corrective measure may be required by the EPA Regional Administrator. These documents provide the organizational and technical requirements for ensuring that data quality is adequate to support any decision-making processes which rely on these data. Similar documents are prepared during the RFI and CMS, and a detailed discussion of the requirements for these documents can be found in Chapters 3 and 4. (40 CFR §264.525(e)(2))

*Continued from previous page.
Step 7.*



8
Development of timeline and milestones
for compliance with media
cleanup standards.



9
All requirements for demonstrating
compliance with media cleanup
standards specified in draft
and final permit modification.

Step 8

Under the proposed Subpart S rule, the EPA Regional Administrator specifies in the permit the length of time the owner/operator must demonstrate compliance with MCS at the facility (sometimes referred to as the period of performance), once the MCS are met by the implemented corrective measure. In developing this requirement, the EPA Regional Administrator considers the following factors:

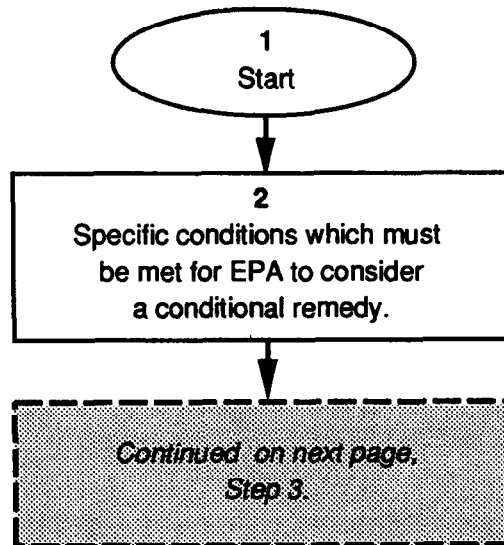
- The extent and concentrations of the hazardous wastes released;
- Information on the environmental fate and transport mechanisms of the contaminants;
- The accuracy of the monitoring techniques;
- The characteristics of the affected media; and
- The environmental setting of the facility, particularly any seasonal, meteorological, or other environmental variables which might affect the accuracy of the monitoring results.

If the facility successfully demonstrates compliance with the MCS for the period of performance specified in the permit, the facility can request a permit modification ending the corrective action. This request must be certified by an independent registered professional engineer. However, if the concentrations of contaminants rise above the MCS, the facility will have to continue operation of the corrective measure. Once the MCS are again achieved, the period of performance starts anew (the "clock" is reset to "zero"). (40 CFR §264.525(e)(3))

Step 9

All the requirements for demonstrating compliance with the MCS for the facility are specified in the draft and final permit modification. It is incumbent on the facility to support the MCS development process through discussions and negotiations with the EPA Regional Administrator. This support can range from supplying complete copies of all necessary documentation to EPA in a timely manner, suggesting locations for the points of compliance, recommending sampling and analytical protocols, and negotiation of the MCS period of performance. (40 CFR §264.526(b)(3))

Module 5-4: Phased or Conditional Remedies



Module 5-4: Phased or Conditional Remedies

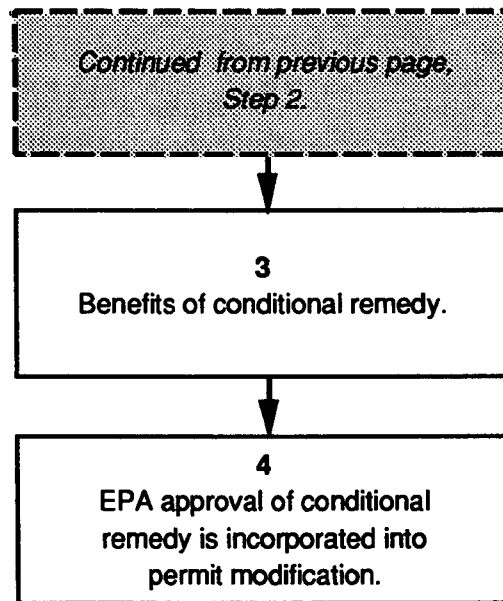
Implementing the corrective measure is often a complex, costly, and lengthy undertaking. The proposed Subpart S rule allows phasing the implementation of the corrective measure. Phasing of the implementation of the corrective measure is similar to the use of operable units during CERCLA Remedial Actions. Each phase represents a logically connected sequence of activities that is consistent with, and complementary to, completing the corrective measure. However, EPA may impose certain conditions on the phasing of a corrective measure (phasing without conditions is referred to as a "phased remedy," whereas if conditions are placed on the phasing, the process is called a "conditional remedy"). In light of the conditions at, and budgetary constraints placed on, Federal facilities, EPA anticipates the frequent use of conditional remedies at Federal facilities. This module discusses the approach to implementing a conditional remedy (i.e., phasing-in the corrective measure).

Step 1 **Start.**

Step 2 The key requirement for a conditional remedy is that the facility can work to prevent further environmental degradation during the phase-in of the corrective measure (40 CFR §264.525(f)(2)). If this requirement cannot be met, the use of a conditional remedy is not appropriate and is unlikely to be considered by EPA.

There are seven specific conditions which a conditional remedy *must* meet:

- Protection of human health and the environment;
- Achieving *all* media cleanup standards (MCS) beyond the facility boundary, as soon as is practical;
- Prevention of further environmental degradation through source controls, and the use of engineered measures to prevent further migration of the release within the facility boundary;
- Implementation of management and institutional controls to prevent exposure to hazardous wastes at the facility;
- Continuation of environmental monitoring to determine if additional environmental degradation occurs;
- Provision for financial assurances (not applicable to Federal facilities); and
- Compliance with standards for waste management for wastes generated during the corrective measure.



Step 3

The benefit of using a conditional remedy is that EPA may permit contaminants to remain at an operating facility (for the term of the permit) if:

- (1) The owner/operator implements source controls which prevent offsite migration;
- (2) The risk of exposure, additional releases, or further migration is low; and
- (3) There is remediation of offsite contamination to MCS (as soon as practical).

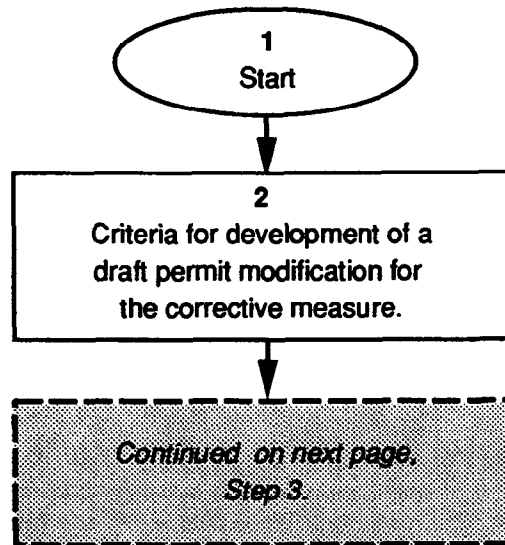
However, these provisions should not be confused with the final cleanup at the facility. Conditional remedies are not necessarily final remedies. Remediation of all contamination at the facility is a potential requirement for discharging the obligation to conduct RCRA Corrective Action.

An example of a situation where a conditional remedy may be used is a SWMU consisting of buried drums, which have leaked and contaminated the underlying aquifer with hazardous waste constituents. The owner/operator could phase the remedy to first implement source control and prevent additional releases through excavation of the drums and contaminated soils. The second phase of the corrective measure would be implementing measures to prevent further migration of the contamination through use of slurry walls or a groundwater extraction system. The final phase would involve implementation of a groundwater remediation system such as a pump-and-treat system. (55 FR 30833)

Step 4

Authorizing conditional remedies is a discretionary function. EPA is under no obligation to consider the use of this option, even if a facility can demonstrate ability to meet any and all conditions. Through negotiation with EPA, the facility should seek authorization to conduct conditional remedies whenever appropriate. If EPA authorizes the facility to conduct a conditional remedy, any requirements and conditions imposed by EPA are incorporated into the draft and final permit or permit modification.

Module 5-5: Permit Modification



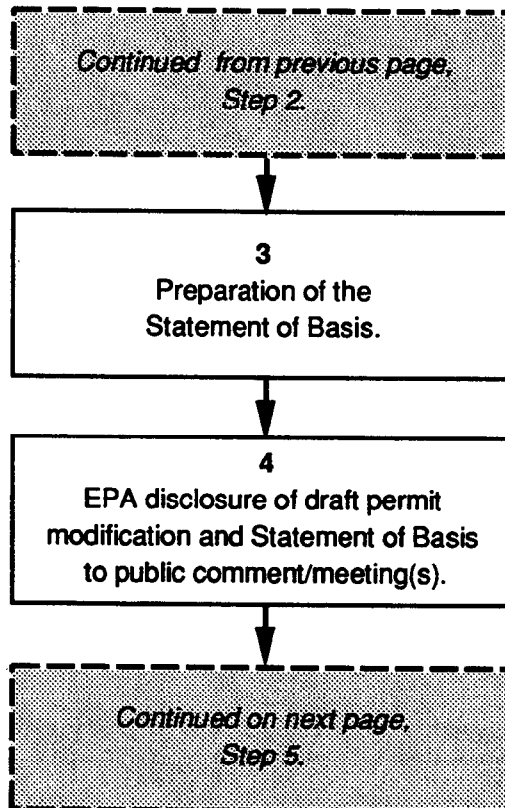
Module 5-5: Permit Modification

The RCRA §3008(h) order, permit, or permit modification creates the binding requirement to conduct the selected corrective measure and specifies the conditions under which the facility will operate while conducting the corrective measure. The specific standards for this type of permit modification are found in the proposed Subpart S rule at 40 CFR §264.526 and follow the procedures for a major permit modification found at 40 CFR §124 and in the proposed rule at 40 CFR §§270.41-270.43. This process includes development of the permit modification, a comment and response period, and a public hearing.

Step 1 Start.

Step 2 EPA, often in consultation with the facility owner/operator, develops a draft permit modification specifying the corrective measure. Under proposed 40 CFR §264.526(b) the draft permit modification is required to include:

- A description of the technical features of the corrective measure that are necessary for achieving the general standards established for corrective measures (40 CFR §264.526(b)(1));
- A listing of all media cleanup standards (MCS) established for the corrective measure (40 CFR §264.526(b)(2));
- The specific requirements for demonstrating compliance, including points of compliance, the frequency and duration of sampling, and specific analytical, sampling, and data management requirements (40 CFR §264.526(b)(3));
- The period of performance required;
- Specific requirements for the management of waste generated during implementation of the corrective measure (40 CFR § 264.526(b)(4));
- The requirements and procedures for decontamination, removal, or closure of any units or structures used during implementation of the corrective measure;
- A detailed schedule for implementing all the major technical features, and a target date for completion of the corrective measure; and
- Any requirements for submission of periodic progress reports.



Step 3

Following development of the draft permit modification, EPA will prepare a Statement of Basis or a Fact Sheet. The Statement of Basis and Fact Sheet are similar in purpose to a Record of Decision (ROD) under CERCLA. A Statement of Basis or Fact Sheet provides a general discussion of the alternative EPA selected and an explanation of the MCS established for the facility.

The content and detail of the Statement of Basis includes:

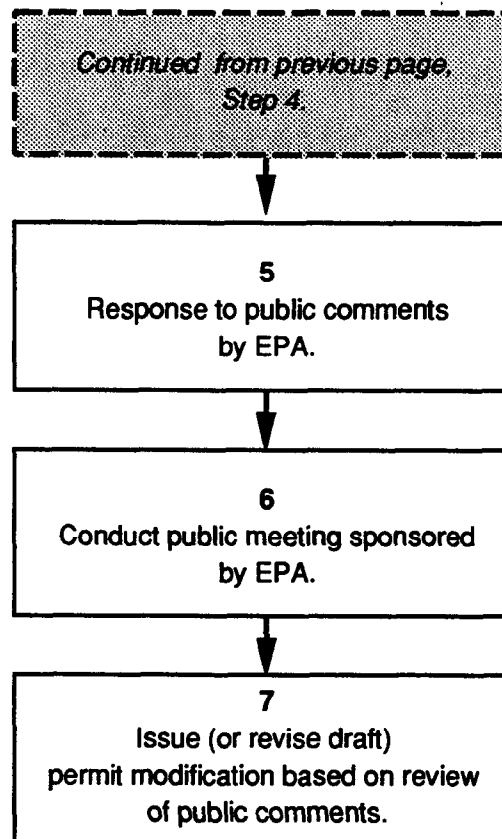
- A brief description of the derivation of the conditions of the draft permit and the reasons for these conditions; and
- A reason supporting any intent to deny or terminate the permit.

A Fact Sheet is more detailed; however, the content will vary depending on the nature and complexity of the corrective measure. Typically a Fact Sheet includes:

- A brief description of the type of facility or activity subject to the permit;
- The type and quantity of waste being proposed for treatment, storage, or disposal;
- A brief summary of the conditions applicable to the permit and the reasons for these conditions;
- A discussion of any variances to the regulations and the proposed alternatives, along with justification for these variances and alternatives;
- A description of the process to be used in reaching a final decision on the permit modification; and
- The name, address, and telephone number of the EPA contact person able to supply additional information.

Step 4

Once the draft permit modification and Statement of Basis are completed, EPA may provide an advance copy to the facility for review and comment. In any case, once the draft permit or permit modification is complete, EPA will provide a written notice of a 45-day public comment period. This notice must be published in a local newspaper 30 days prior to commencement of the comment and response period. At the same time, EPA may announce the date for a public hearing, if such a meeting is requested by the owner/operator or the public (public hearings are expected to occur at most DOE facilities, due to the high-profile status of these facilities). Information on the location and hours of operation of a document repository where the public can review all documents related to this RCRA Corrective Action is also provided in the announcement. (55 FR 30835)



Step 5

The EPA is required to respond to all comments received during this period. The owner/operator should provide written comments on the corrective measure selected for the facility, discussing areas of agreement and disagreement with EPA. The owner/operator should realize the permit is unlikely to be drastically altered once it has reached this point in the process. The facility should attempt to influence the permit during development, through negotiations and discussions with EPA. The comment and response period also provides a useful mechanism for educating and informing the public on the DOE policy and approach to environmental compliance and restoration.

Step 6

The owner/operator usually is invited to participate in the public hearing (if one is required). If EPA does not extend such an invitation, the owner/operator should seek listing as a speaker. At the public hearing the owner/operator has the opportunity to provide the local community information on the corrective action under discussion. Equally important is the opportunity the facility has for increasing the owner/operator's awareness of the concerns of the local community. By learning the concerns of the local community, the owner/operator is able to address these issues, reducing the chances for a confrontation over implementing the corrective measure or over other issues of concern. (55 FR 30848)

Step 7

Following the public meeting and the close of the comment and response period, EPA will prepare a written response to all comments received regarding the draft modification. Once these responses are prepared and incorporated into the administrative record for the permit modification, EPA may issue or revise the draft permit modification. If substantial revisions are required, EPA may reopen the public comment and response period. If no or only minor revisions are required, the EPA will issue the permit modification, and the facility may begin implementing the corrective measure. The implementation of the corrective measure is discussed in the next chapter of this document.

The DOE Office of Environmental Guidance (EH-231) has developed a detailed guidance document entitled *Public Participation in Environmental Restoration (DOE/EH-0221, November, 1991)* that provides information on the requirements for community relations.

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